Feasibility Study Work Plan

for the

Passaic River Study Area

January 1995

The format of this document may appear slightly different from the version submitted to US EPA (1995) due to changes in software. There has been no change in content

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1.0
INTRODUCTION

This Feasibility Study Work Plan (FSWP) for the Passaic River Study Area has been prepared pursuant to Section VII, Paragraph 40 of the Administrative Order on Consent (AOC) Index No. II-CERCLA-0117 in the matter of the Diamond Alkali Superfund Site (Passaic River Study Area). This FSWP is submitted on behalf of Maxus performing on behalf of Occidental Chemical Corporation (OCC) and has been prepared in accordance with the requirements of Section G of the Statement of Work (SOW) (Appendix 1 of the AOC).

The FSWP describes the work to be performed and a schedule for implementation of the work. The feasibility study (FS) work plan provides for the implementation of the FS in conformance with the AOC SOW and the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the National Contingency Plan (NCP) utilizing guidance from the U.S. Environmental Protection Agency (EPA) guidance documents relating to the performance of feasibility studies under CERCLA.

Six tasks have been identified in the SOW to prepare the FS. The tasks are as follows:

Task 1	-	Description of Current Situation and Proposed Response
Task 2	-	Development of Alternatives
Task 3	-	Initial Screening of Alternatives
Task 4	-	Treatability Studies
Task 5	-	Evaluation of the Alternatives
Task 6	-	Draft Feasibility Study Report

Each of these tasks is discussed in a subsection of Section 4 of the FSWP. Each section defines the work to be performed.

1.1 PURPOSE AND SCOPE

The primary purpose of the work described in this plan is to provide a framework within which appropriate remedial alternatives are developed and evaluated for use in selection of a remedy, if required.

1.2 WORK PLAN ORGANIZATION

This work plan is organized into six sections including references. Following this introduction is a list of acronyms used in this document (Table 1-1). Section 2.0 describes the physical setting and site history. Section 3.0 identifies data uses and data needs and Section 4.0 details the technical approach for the implementation of the FS. Section 5.0 provides a schedule and Section 6.0 lists references.

1.3 PROJECT ORGANIZATION

The project organization and responsibilities are described in Section 2.0 of the Quality Assurance Project Plan (QAPP) and the Site Management Plan (SMP).

TABLE 1-1

LIST OF ACRONYMS

The following is a list of acronyms used through the FSWP

AOC	Administrative Order on Consent, Index No. II - CERCLA - 011T
ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSO	Combined Sewer Outfalls
DDT	dichlorodiphenyl trichlorethate
DO	Dissolved Oxygen
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
FSWP	Feasibility Study Work Plan
HERA	Human and Ecological Risk Assessment
ISC	Interstate Sanitation Commission
IWP	Investigation Work Plan
Maxus	Maxus Corporate Company, a subsidiary of Maxus Energy Corporation
MLW	Mean Low Water
NCP	National Contingency Plan
NJDEP	New Jersey Department of Environmental Protection
NOAA	National Oceanic and Atmospheric Administration
OCC	Occidental Chemical Corporation and its representatives
O&M	Operating and Maintenance
PCB	polychlorinated biphenyls

POTW	Publicly Owned Treatment Works
PRD	Passaic River Division of the USACE
PSE&G	Public Service Electric and Gas Company
QAPP	Quality Assurance Project Plan
RAOs	Remedial Action Objectives
RI	Remedial Investigation
Site	Passaic River Study Area
SMP	Site Management Plan, Appendix I to the AOC
SOW	Statement of Work, Appendix I to the AOC
TBC	to be considered
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey

2.0
PHYSICAL SETTING/SITE HISTORY

This section describes the physical setting of the Passaic River Study Area and the history of the Site. For the purposes of this FS, the shoreline of the Passaic River will be defined as left and right shorelines as looking upstream, and Station 0+00 of the Passaic River Study Area corresponds to the downstream boundary of the Site located approximately at United States Army Corps of Engineers (USACE) station designation 40+00.

2.1 PHYSICAL SETTING

2.1.1 Geologic Setting

The Site is situated within the Newark Basin portion of the Piedmont physiographic province. The province is located between the Atlantic Coastal Province and the Appalachian Province. The Newark Basin is underlain by sedimentary rocks (sandstones, shales, limy shales, and conglomerates), igneous rocks (basalt and diabase) and metamorphic rocks (schists and gneiss). These rocks are from the mid-Triassic to early Jurassic periods. Bedrock underlying the Site is the Passaic Formation (Olsen et al. 1984; Nichols 1968), which consists of interbedded red-brown sandstones and shales.

Almost the entire Passaic River Basin, including the Site, was subjected to glacial erosion and deposition as a result of the last stage of the Wisconsin glaciation. Considerable quantities of stratified sand, silt, gravel and clay were deposited in a glacial lake covering the area. These glaciofluvial deposits overlie bedrock and underlie the meadowlands section of the Newark Basin.

2.1.2 Surface Water Hydrology

Based on data from the United States Geological Survey (USGS 1989) and provided in USACE (1987), the upstream Passaic River contributes the majority of freshwater inflow (approximately 1,200 cubic feet per second on average) to the lower portion of the river, which includes the Site (Figure 2-1). The Third River, a tributary which discharges to the Passaic River approximately three and one half miles upstream of the Site, contributes, on average, an additional 21 cfs (cubic feet per second). Additional freshwater inflow can also come from three ungaged tributaries located downstream of the Third River, namely the Second River, Franks Creek, and Lawyers Creek, and from urban runoff, including storm sewers and combined sewer outfalls (CSOs). According to Suszkowski (1978), the ungaged flow between Dundee Dam and Newark Bay is less than 10% of the total flow at the mouth of the Passaic River. Pollutant loadings that are associated with this additional inflow are considered significant for some chemicals (Killam Associates, Inc. 1976). The lower Passaic River, including the Site, is considered to have serious water quality problems (USACE 1987). The water quality is rated very poor in both the freshwater regime above the Dundee Dam, and below the dam in the saline tidal reach (USACE 1987).

The lower Passaic River, including the Site, is influenced by tidal flows for approximately 17 miles, extending from Dundee Dam downstream to the confluence with Newark Bay. The mean tidal range (difference in height between mean high water and mean low water) at the New Jersey Turnpike Bridge (approximately 1.5 miles upstream from Newark Bay) is 5.1 feet (NOAA 1972) with a mean tide level (midway between mean low water and mean high water) at elevation 2.5 feet (NOAA 1972). The mean spring tide range (average semi-diurnal range occurring during the full and new moon periods) is 6.1 feet. Saline water conditions exist throughout the Site. The cross-sectional average river velocity due to freshwater flow in the Site is approximately 1 foot per second and a typical maximum tidal velocity of approximately is 3 feet per second